

- GEIST, OTTO W., and RAINEY, FROELICH G. *Archaeological excavations at Kukulik, St. Lawrence Island, Alaska*. Misc. Publ. Univ. Alaska **2**. 1936.
- GIDDINGS, J. L., JR. *Dated Eskimo ruins of an inland zone*. Amer. Antiq. **10** (2): 113-134. 1944.
- . *Chronology of the Kobuk-Kotzebue sites*. Tree-Ring Bull. **14** (4). 1948.
- JOHNSON, FREDERICK. *An archaeological survey along the Alaska Highway, 1944*. Amer. Antiq. **11** (3): 183-186. 1946.
- DE LAGUNA, FREDERICA. *The prehistory of northern North America as seen from the Yukon*. Supp. to Amer. Antiq. **12** (3): pt. 2. 1947.
- LEECHMAN, DOUGLAS. *Two new Cape Dorset sites*. Amer. Antiq. **8** (4): 363-375. 1943.
- NELSON, N. C. *Notes on cultural relations between Asia and America*. Amer. Antiq. **2** (4): 267-272. 1937.
- RAINEY, FROELICH G. *Archaeology in Central Alaska*. Anthropol. Pap. Amer. Mus. Nat. Hist. **36**: pt. 4. 1939.
- . *A new form of culture on the Arctic coast*. Proc. Nat. Acad. Sci. **27** (3): 141-144. 1941a.
- . *The Ipiutak culture at Point Hope, Alaska*. Amer. Anthropol. **43** (3): 364-375. 1941b.
- WINTENBERG, W. J. *Eskimo sites of the Dorset culture in Newfoundland. Part 1*. Amer. Antiq. **5** (2): 83-102. 1939.

PALEONTOLOGY.—*New Kansas Lower Cretaceous Foraminifera*.<sup>1</sup> ALFRED R. LOEBLICH, Jr., and HELEN TAPPAN, U. S. National Museum. (Communicated by JAMES S. WILLIAMS.)

The writers have in press a paper describing the foraminiferal fauna of the type Kiowa shale of Kansas. As some of the species are also mentioned in another paper in press, which will have prior publication, descriptions of two of the new species and a new generic diagnosis are given here. This is being done in order to validate the names so that they will not appear as nomina nuda.

Genus *Ammobaculites* Cushman

*Ammobaculites euides* Loeblich and Tappan, n. sp.

Test free, medium in size, early portion coiled, later uniserial, rounded in section; about four chambers in the involute coil, later portion with as many as six uniserial chambers; sutures somewhat obscure in the coil; straight and depressed in the later portion; wall finely arenaceous, surface smoothly finished; aperture terminal, rounded. Length of holotype 0.96 mm., greatest breadth 0.35 mm., greatest thickness 0.19 mm.

*Remarks*.—A complete series can be obtained of this species, from specimens with only the early coil to specimens with as many as six uniserial chambers. This species differs from *A. coprolithiformis* (Schwager) in being about one-third smaller with specimens of equal development, and in having an initial coil of diameter greater than that of the uniserial portion. In *A. coprolithiformis* the earliest uniserial chambers are

much narrower than the coil, the test then flaring with growth, and the chambers also increasing rapidly in height as added. In *A. euides* the initial coil is greater in diameter than the uniserial portion, which increases very little in diameter or chamber height. *Ammobaculites euides* is similar to Upper Cretaceous specimens referred to *A. coprolithiformis* by Cushman, but differs from these in the smaller size, in having comparatively higher chambers, and in having a much more smoothly finished wall.

*Occurrence*.—The holotype of this species was collected from the Kiowa shale, along the south bluff of the Medicine Lodge River, in the E½ sec. 16, T. 30 S., R. 17 W., Kiowa County, Kans. The species is found also in the Kiowa shale ("Spring Creek" clay) from Spring Draw, in the SE¼ sec. 4, and E½ sec. 3, T. 30 S., R. 18 W., and from the draw in the SE¼ sec. 9, T. 30 S., R. 16 W., Kiowa County, Kans.

*Types*.—Holotype, U. S. N. M. No. 112528; paratypes, U. S. N. M. No. 112527a-d and University of Kansas collections.

*Ammobaculites obliquus* Loeblich and Tappan, n. sp.

Test free, medium in size, early portion close coiled, later uniserial and rounded in section; five to seven chambers in the coil, followed by three to four uniserial chambers; sutures straight and obscure in the coil, oblique and slightly depressed in the uniserial portion; wall finely arenaceous, surface smoothly finished; aperture terminal, rounded. Length of holotype 0.86

<sup>1</sup> Published by permission of the Secretary of the Smithsonian Institution. Received February 2, 1949.

mm, greatest breadth 0.32 mm, greatest thickness 0.25 mm.

*Remarks.*—This species differs from *Ammobaculites coprolithiformis* (Schwager) in being about one-half as large, in having a more compressed coil, and in possessing oblique sutures in the uniserial portion.

*Occurrence.*—The holotype is from the Kiowa shale along the south bluff of the Medicine Lodge River in the E $\frac{1}{2}$  sec. 16, T. 30 S., R. 17 W., Kiowa County, Kans. It is recorded also from the Kiowa shale in the draw in the SE $\frac{1}{4}$  sec. 9, T. 30 S., R. 16 W., and from the Kiowa shale ("Spring Creek" clay) in Spring Draw, in the SE $\frac{1}{4}$  sec. 4 and E $\frac{1}{2}$  sec. 3, T. 30 S., R. 18 W., Kiowa County, Kansas.

*Types.*—Holotype, U. S. N. M. no. 112522; paratypes, U. S. N. M. no. 112521a-c and University of Kansas collections.

#### *Verneulinoides* Loeblich and Tappan, n. gen.

*Diagnosis.*—Test free, elongate, triserial throughout, with rounded angles, chambers increasing in size toward the apertural end; sutures generally distinct and depressed; wall arenaceous, aperture an arch at the base of the final chamber.

*Genotype.*—*Verneuilina schizea* Cushman and Alexander (1930: 9)

*Remarks.*—This genus differs from *Verneuilina* d'Orbigny in having rounded angles, rather than being triangular in section, and in being elongate and narrow rather than pyramidal in shape. The genotype of *Verneuilina*, *V. tricarinata* d'Orbigny, has a definite pyramidal test, with sharp angles; thus the rounded forms must have a new name. The following previously described species are here referred to *Verneulinoides*: *Verneuilina fava* Bartenstein (1937: 183) (Dogger), Jurassic of Germany; *V. schizea* Cushman and Alexander (1930: 9) (Goodland), Lower Cretaceous of Texas; *V. polystropha* (Reuss) (1846: 109) is questionably referred to *Verneulinoides*. This species was described by Reuss from the Upper Cretaceous of Bohemia as *Bulimina polystropha* with the statement that it had a "very rough surface" although he did not state the wall composition. It was later referred to *Verneuilina* by Parker, Jones, and Brady, and arenaceous forms were so identified by these workers as well as Cushman and Jarvis. Reuss' illustrations do not show the arenaceous character, but as they are somewhat diagrammatic this is not conclusive. Cushman stated that there were no specimens of the species

in any of the Reuss collections in Vienna, Dresden, or Cambridge and that he had been able to find none in material from the type locality. Thus it can not be definitely determined whether or not the original material was calcareous or arenaceous. Specimens were referred to *Bulimina polystropha* by Berthelin (1880: 30) from the Albien of Moncey, France, with the statement that the species had a hyaline test, very distinctly perforate. Chapman (1892: 756) recorded *Bulimina polystropha* from the Gault of Folkestone stating, "In the Gault are innumerable examples of a tiny vitreous-shelled Foraminifer, which appears more closely related to Reuss's specimen from the Bohemian chalk . . . than to the recent forms with a sandy test, described under the name of *Verneuilina polystropha* (Parker, Jones, and Brady). The Gault specimens have an abnormal *Bulimine* oral aperture, somewhat semicircular in outline, but their relation to the *Buliminae* appear to be established by the presence of some fine radiating striae round the aperture. This very minute form is one of the smallest in the Gault series, and found only in the finest siftings. . ." Thus both Berthelin and Chapman state that the specimens were calcareous. In addition to the differences in wall character, the Lower Cretaceous specimens of Berthelin and Chapman are much smaller than the Upper Cretaceous form, and the chambers are higher and more globular. Thus the Lower Cretaceous specimens are quite distinct from the arenaceous forms, and probably belong to either *Gumbelitra* or *Bulimina*, the globular chambers and large rounded aperture suggesting the former, although the striations around the aperture mentioned by Berthelin and Chapman suggest a relationship with the *Buliminidae*. The Upper Cretaceous references to the species other than the original one seem to belong definitely to *Verneulinoides*, but as the original material is questionable, it does not seem advisable to refer them to Reuss' species. According to Cushman, the Recent references to the species should be placed in *Verneuilina scabra* (Williamson) or in *V. advena* Cushman.

Additional species placed in *Verneulinoides* are *Verneuilina kurti* Jennings (1936: 12) (Navesink marl), Upper Cretaceous of New Jersey; *V. pcrplexa* Loeblich (1946: 138) (Pepper formation), Upper Cretaceous of Texas; *V. bearpawensis* Wickenden (1932: 87) (Bearpaw shale), Upper Cretaceous of Canada; *V. parri* Cushman (1936:

2) (Gingin chalk), Upper Cretaceous of Australia; *V. superba* Earland (1934: 118), Recent in the Antarctic; *V. spiculotesta* Cushman (1935: 2), Recent off Puerto Rico; and "V." *cummingensis* Nauss (Cummings member of the Mannville formation), Upper Cretaceous of Alberta, Canada. Nauss (1947: 340) stated, "Further study may reveal that these arenaceous Foraminifera with subcircular cross-section should be considered a new genus. . ." but tentatively referred the species to *Verneuilina*.

The species *Verneuilina schizea* Cushman and Alexander was selected as the genotype for a number of reasons. The writers have a large suite of topotypes of this species and have studied the holotype at the Cushman Laboratory. This species shows all the generic characters well, is quite abundant in the Lower Cretaceous Goodland formation where it occurs, and material from the type locality at the Lake Worth Dam near Fort Worth, Tex., is easily obtainable. Many of the other species referred above to *Verneulinoides* are extremely rare or from dredgings or well material so that topotypes or representative material cannot easily be obtained by future workers.

REFERENCES

BARTENSTEIN, H. *Mikropaläontologische untersuchungen zur stratigraphie des nordwest-*

*deutschen Lias und Doggers.* Naturf. Ges., Abh. 439 (1). 1937.  
 BERTHELIN, M. *Mémoire sur les foraminifères fossiles de l'Etage Albien de Monclay (Doubs).* Mém. Soc. Géol. France, ser. 3, 1 (1). 1880.  
 CHAPMAN, F. *The foraminifera of the Gault of Folkestone Pt. 3.* Journ. Royal Micr. Soc. (749). 1892.  
 CUSHMAN, J. A., and ALEXANDER, C. I. *Some Vaginulinas and other Foraminifera from the Lower Cretaceous of Texas.* Contr. Cushman Lab. Foram. Res. 6 (1). 1930.  
 ———. *Fourteen new species of foraminifera.* Smithsonian Misc. Coll. 91 (2). 1935.  
 ———. *New genera and species of the families Verneulinidae and Valvulinidae and of the subfamily Virgulininae.* Cushman Lab. Foram. Res. Spec. Publ. 6 (1). 1936.  
 EARLAND, A. *Foraminifera, Part III. The Falklands sector of the Antarctic (excluding South Georgia).* Discovery Reports 10 (1). 1934.  
 JENNINGS, P. H. *A microfauna from the Monmouth and basal Rancocas groups of New Jersey.* Bull. Amer. Pal. 23 (159). 1936.  
 LOEBLICH, A. R., Jr. *Foraminifera from the type Pepper shale of Texas.* Journ. Pal. 20 (130). 1946.  
 NAUSS, A. W. *Cretaceous microfossils of the Vermillion area, Alberta.* Journ. Pal. 21 (329). 1947.  
 REUSS, A. E. *Die versteinierungen der Bohmischen Kreideformation* 6 (1). 1846.  
 WICKENDEN, R. T. D. *New species of Foraminifera from the Upper Cretaceous of the Prairie Provinces.* Trans. Royal Soc. Canada, ser. 3, sect. 4, 26 (85). 1932.

ENTOMOLOGY.—*The caddisfly genus Neothremma Banks (Trichoptera: Limnephilidae).*<sup>1</sup> HERBERT H. ROSS, Urbana, Ill.

Until recently the very interesting genus *Neothremma* has been known only on the basis of the genotype, *alicia* Banks. A few years ago Dr. W. E. Ricker sent me material of a second species, which is of great assistance in giving a little better perspective to the facies of the genus. The two species may be separated by the following key:

Male with lateral process of ninth segment nearly straight, its apical fork vertical in position and with nearly equal arms, Fig. 2; fused claspers elongate and only slightly emarginate at apex, Fig. 2A. Female with subgenital plate narrowing toward apex and very deeply and widely emarginate, Fig. 2B. . . . . *alicia* Banks  
 Male with lateral process of ninth segment strongly curved ventrad, the fork horizontal, the inner

*Neothremma Banks (Trichoptera: Limnephilidae).* Illinois State Natural History Survey,

finger much shorter than the outer, Fig. 1; fused claspers short and tri-emarginate, with a pair of sharp points near the meson, Fig. 1B. Female with subgenital plate expanding toward apex, the apical margin obliquely emarginate, with a slightly deeper but small cleft in the middle, Fig. 1C. . . . . *didactyla*, n. sp.

*Neothremma didactyla*, n. sp.

*Male*.—Length 6.5 mm. Color moderately dark brown, antennae and legs below coxae yellowish brown. General structure of warts, spurs, and venation typical for *alicia*. Maxillary palp subequal in length to labial palp, first and third segments short and subequal, second segment one and one-half times length of third, all three with a sparse mesal brush of fairly long, irregular hair. Front of head with mesal sclerite bearing a patch of sparse setae which have

<sup>1</sup> Received January 7, 1949.